IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

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Cust. No.	:	37398	
For	:	**PHOTOTHERMOGRAPHIC MATERIAL**	

Commissioner for Patents

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DECLARATION PURSUANT TO 37 C.F.R. 1.132

Sir:

I, Yasuhiro Yoshioka, do declare and state as follows:

I graduated from Tokyo University with a Masters Degree in Science (researching ion dissociation processes of organic compounds according to the DNNR method) in March 1980;

I joined Fuji Photo Film Co., Ltd. (hereinafter, "Fuji") in April 1980, and from that time until the present I have been engaged in research and development in the field of photographic light-sensitive

materials at Fuji's Ashigara laboratory (currently, Digital & Photo-Imaging Materials Research Laboratories); from 1980 until 1989 I was engaged in research there on statement analysis and reaction analysis of photo-organic material; from 1990 until 1998 I was engaged in development and design of color sensitive materials; from 1999 until the present I have been engaged in development and design of photothermographic materials;

I am a co-inventor of the subject matter disclosed and claimed in the above-identified patent application; and

I am familiar with the Office Action of March 23, 2005 and understand the Examiner's rejections therein.

The following additional comparative experiments were carried out by me or under my supervision in order to make the advantages of the subject matter more clear.

EXPERIMENTS

<Additional experiments according to claim 1>

(Additional experiment 1)

Samples 1-12 were prepared in the same manner as the samples shown in Table 1 of the Examples of the specification of the present application except that the kind of slipping agent in protection layer of the image forming side and protection layer of the back side was changed as shown in the following Table (I). Note that the slipping

agents R-1, S-1, S-2, and S-3 which were used are described on page 14 of the present specification, and that R-101, R-102, R-103, R-105, R-106, S-101, S-102, and S-103 are the slipping agents described below.

R-101: 10% by mass of R-1 was vacuumed distilled, and the total amount of a volatile recovery component thereof was added to R-1.

R-102: 10% by mass of R-1 was vacuumed distilled, and 50% of a volatile recovery component thereof was added to R-1.

R-103: 10% by mass of R-1 was vacuumed distilled, and 25% of a volatile recovery component thereof was added to R-1.

R-105: 10% by mass of R-1 was vacuumed distilled, and 10% of a volatile recovery component thereof was added to R-1.

R-106: From R-1, 1% by mass was distilled off by vacuum distillation.

S-101: From R-1, 2% by mass was distilled off by vacuum distillation.

S-102: From R-1, 30% by mass was distilled off by vacuum distillation.

S-103: From R-1, 60% by mass was distilled off by vacuum distillation.

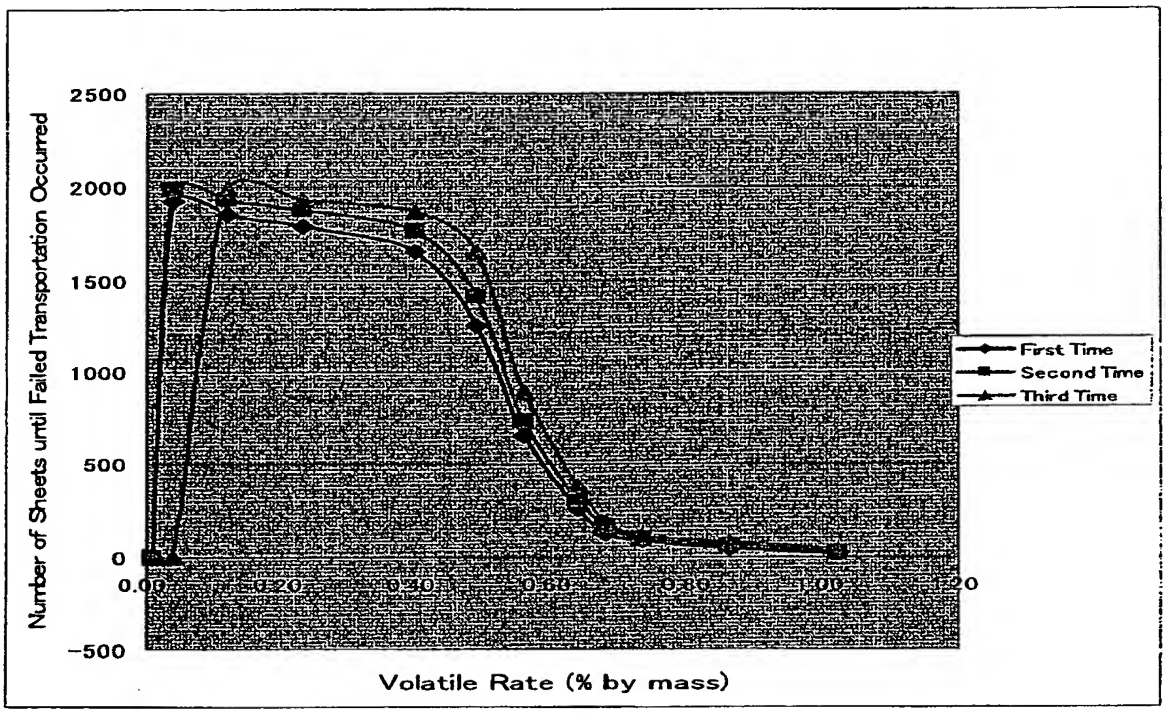
Using these samples, thermal development was carried out by the same method as in Example 1 of the present specification.

TABLE (I)

Sample No.	Kind of Slipping Agent	Volatile Rate (% by mass)	Number of Sheets until Failed Transportation Occurred			
			First Time	Second Time	Third Time	
1	R−101	1.02	21	25	39	Comp. Example
2	R−102	0.86	45	60	73	Comp. Example
3	R−103	0.73	81	92	106	Comp. Example
4	R−105	0.68	125	165	183	Comp. Example
5	R−1	0.64	258	303	388	Comp. Example
6	R−106	0.56	655	731	887	Comp. Example
7	S−101	0.49	1249	1411	1652	Invention
8	S−1	0.40	1654	1768	1867	Invention
9	S−2	0.23	1793	1874	1935	Invention
10	S−3	0.12	1855	1930	1983	Invention
11	S−102	0.04	1921	1983	more than 2000	Invention
12	S−103	0.01	more than 2000	more than 2000	more than 2000	Invention

The results in Table (I) are shown in the following Fig. (I).

FIG. (I)



As is evident from Fig. (I), a clear difference in number of sheets until failed transportation occurred can be seen taking a value of 0.5% as a boundary of the volatile rate. That such results can be obtained is taught in neither of references Goan and Kobayashi, and moreover, since these references include no teaching whatsoever regarding a definite numerical value of a volatile rate of 0.5%, it can by no means be said that this is obvious.

(Additional experiment 2)

Sample No. 1A shown in Table 1 in the Examples of the

specification of the present application was prepared according to the same method as described in the present specification. The prepared sample was designated as Sample 23 of the following Table (II). The amount of the slipping agent R-1 used in Sample 23 was designated as "×1", and the amount of the slipping agent R-1 was changed as shown in Table (I) to prepare each of Samples 21, 22, and 24-27.

Similarly, Sample 30 in the following Table (II) is Sample No. 1C shown in Table 1 in the Examples of the specification of the present application, and the amount of the slipping agent S-1 used therein was changed to the usage amounts shown in the following Table (II) to prepare Samples 28-34.

Further, Sample 37 in the following Table (II) is Sample No. 1E shown in Table 1 in the Examples of the specification of the present application, and the amount of the slipping agent S-3 used therein was changed to the usage amounts shown in the following Table (II) to prepare Samples 35-41.

The slipping agents R-1, S-1, and S-3 are described on page 14 of the specification of the present application. Further, the slipping agents shown in the following Table (II) were used in both the image forming layer protection layer and the back surface protection layer.

Using these samples, thermal development was carried out by the same method as in Example 1.

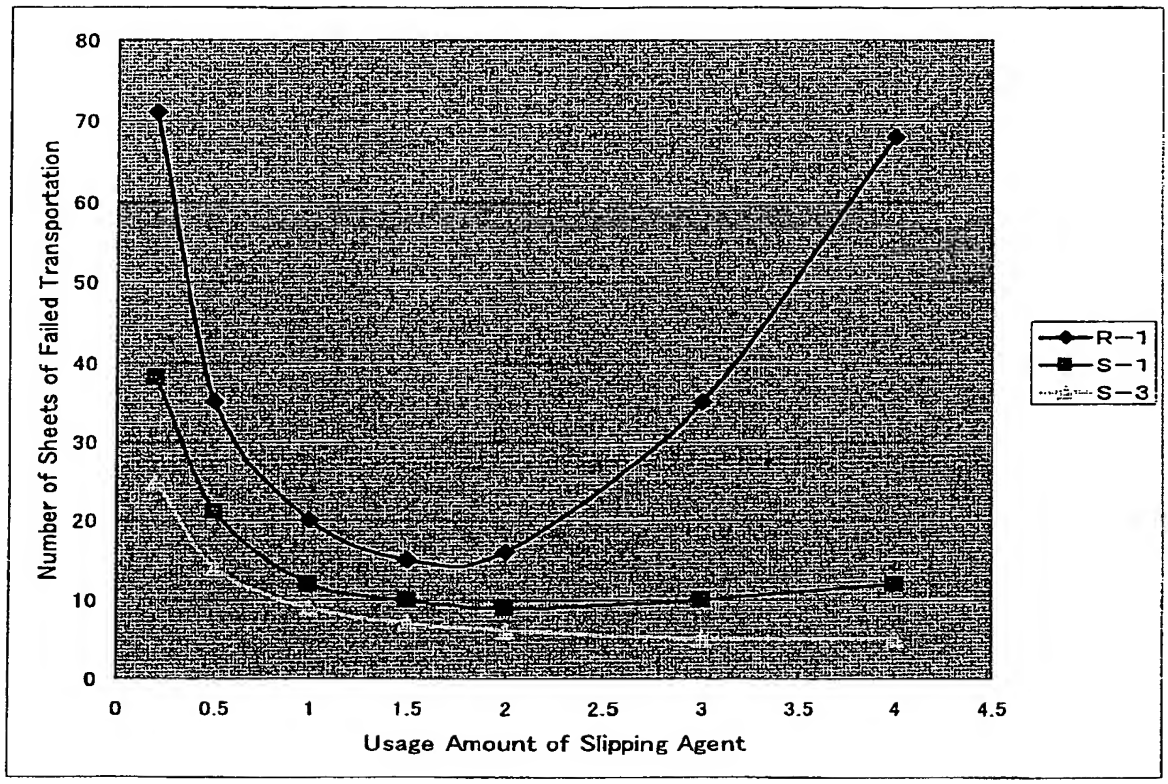
TABLE (II)

Sample No.	Kind of Slipping Agent	Usage Amount	Number of Sheets of Failed Transportation	
21	R-1	×0.2	71	Comp. Example
22		×0.5	35	
23		×1	20	
24		×1.5	15	
25		×2	16	
26		×3	35	
27		×4	68	
28	S-1	×0.2	38	Invention
29		×0.5	21	
30		×1	12	
31		×1.5	10	
32		×2	9	
33		×3	10	
34		×4	12	
35	S-3	×0.2	25	Invention
36		×0.5	14	
37		×1	9	
38		×1.5	7	
39		×2	6	
40		×3	5	
41		×4	5	

(For example, "×0.5" under "Usage Amount" for Sample 22 means 0.5 times the usage amount for Sample 23.)

The results in Table (II) are shown in the following Fig. (II).

FIG. (II)



From the results in Fig. (II), in cases where compounds S-1 and S-3 of the present invention are used, the number of sheets of failed transportation hardly changes even when the usage amount thereof is increased. However, in cases where comparative compound R-1 in which the volatile rate exceeds 0.6% is used, the number of sheets of failed transportation rapidly increases when the usage amount of the compound is increased.

<Additional experiments according to claim 4>

(Additional experiment 3)

New samples 113-117 and 217-221 described in Table (III) were prepared by the same method as the samples prepared in Example 3 of the present specification, except that the slipping agents in the following Table (III) were used in place of R-1, in an amount equal to the amount of R-1 used in Example 3. The slipping agents in the following Table (III) were used in both the protection layer of image forming side and the protection layer of back side.

Slipping agents S-1, S-2, and S-3 are described on page 22 of the present specification. Slipping agent S-49 was obtained by distilling off 20.5% by mass of from slipping agent R-1 (permeating rate: 5.7% by mass) by vacuum distillation. Slipping agent S-50 was obtained by distilling off 24.1% by mass from slipping agent R-1 (permeating rate: 4.1% by mass) by vacuum distillation.

Note that "plane-like failure" refers to a phenomenon in which chemical substances remaining after thermal development adhere to the transportation rollers as contamination, and this contamination adheres to the surface of the photosensitive material during the repetition of thermal development to adversely affect an output image or the like. Specifically, a problem occurs in which, for example, observation of a photographic image becomes difficult due to oily deposits adhered to the surface of a medical film.

Using these samples, thermal development was carried out by the same method as in Example 3, and evaluation with regard to the number of sheets in plane-like failure was carried out in the same manner as in Example 3. The results of additional experiment 3 are

shown in Table (III).

Table (III)

Sample No.	Kind of Slipping Agent	permeating rate (% by mass)	Number of Sheets in Plane-like Failure (per 2000 sheets)	
113	S-1	7.5	20	Comp. Example
114	S-2	7.2	18	Comp. Example
115	S-3	6.8	15	Comp. Example
116	S-49	5.7	3	Invention
117	S-50	4.1	2	Invention
217	S-1	7.5	17	Comp. Example
218	S-2	7.2	16	Comp. Example
219	S-3	6.8	14	Comp. Example
220	S-49	5.7	2	Invention
221	S-50	4.1	1	Invention

As is evident from Table (III), a large difference in the number of sheets in plane-like failure can be seen between Sample No. 115 and Sample No. 116, that is, taking a permeating rate of 6% as a boundary. Neither the fact that such results can be obtained, nor a definite numerical value of a permeating rate of 6% is taught in either of references Goan and Kobayashi, and thus it can by no means be said that this is obvious.

(Additional experiment 4)

The same samples as those in additional experiment 3 were prepared, and further, Samples 101, 103, 105, 107, 109, 111, 201, 203, 205, 207, 209, 211, 214, and 216 of Example 3 of the present specification were also prepared.

Thermal development and evaluation were carried out by the same method as in additional experiment 3. However, whereas evaluation of the number of sheets in plane-like failure was carried out per 2000 sheets in additional experiment 3, this evaluation was carried out per 1000 sheets, per 2000 sheets, per 3000 sheets, per 5000 sheets, and per 10,000 sheets in additional experiment 4.

The results are shown in Tables (IV) and (V).

Table (IV)

Sample No.	Permeating Rate (% by mass)	Number of Sheets in Plane-like Failure					
		per 1000 sheets	per 2000 sheets	per 3000 sheets	per 5,000 sheets	per 10,000 sheets	
101	8.0	10	21	42	85	222	Comp. Example
103	1.0	0	2	3	4	6	Comp. Example
105	0.2	0	1	1	2	3	Invention
107	0.29	0	0	0	0	0	Invention
109	1.0	0	1	1	1	2	Invention
111	0.29	0	0	0	0	0	Invention
113	7.5	8	20	37	76	163	Comp. Example
114	7.2	8	18	35	68	148	Comp. Example
115	6.8	6	15	31	57	130	Comp. Example
116	5.7	0	3	5	8	16	Invention
117	4.1	0	2	3	5	7	Invention

Table (V)

Sample No.	Permeating Rate (% by mass)	Number of Sheets in Plane-like Failure					
		per 1000 sheets	per 2000 sheets	per 3000 sheets	per 5,000 sheets	per 10,000 sheets	
201	8.0	8	18	35	76	199	Comp. Example
203	1.0	0	1	2	2	3	Comp. Example
205	0.2	0	0	0	0	0	Invention
207	0.29	0	0	0	0	0	Invention
209	1.0	0	1	1	1	2	Invention
211	0.29	0	0	0	0	0	Invention
214	5.4	0	1	2	7	12	Invention
216	2.0	0	1	1	2	3	Invention
217	7.5	8	17	34	71	174	Comp. Example
218	7.2	8	16	33	60	132	Comp. Example
219	6.8	6	14	29	51	115	Comp. Example
220	5.7	0	2	3	6	14	Invention
221	4.1	0	1	2	4	6	Invention

The results of Tables (IV) and (V) are shown in the following Figs. (III) and (IV).

FIG. (III)

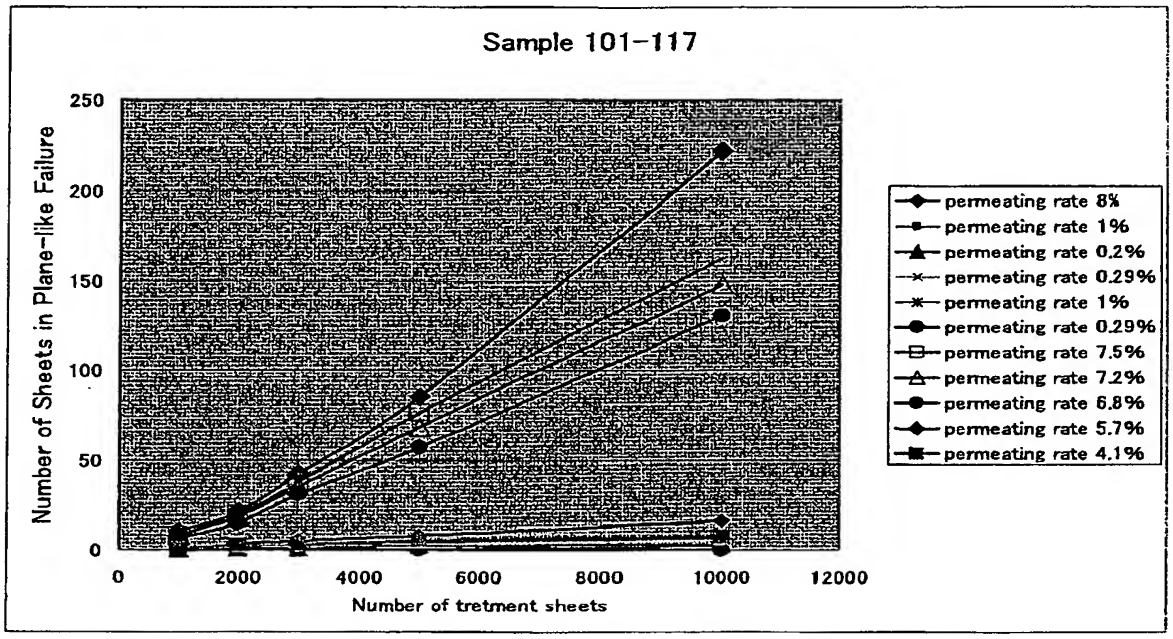
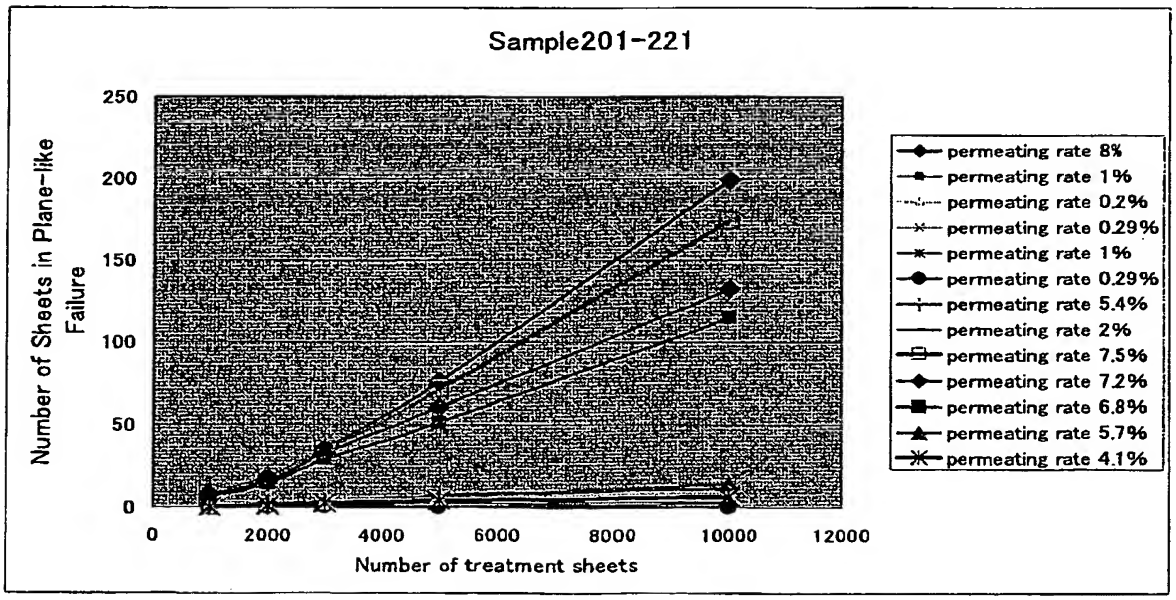


FIG. (IV)



As can be seen from the results in Figs. (III) and (IV), in cases where the slipping agent of the present invention in which the permeating rate is 6% by mass or less is used, the number of sheets in plane-like failure hardly changes even when the number of treatment sheets is increased. On the other hand, it is seen that, in cases where the comparative examples in which the permeating rate exceeds 6% by mass are used, the number of sheets in plane-like failure rapidly increases when the number of treatment sheets is increased.

I hereby declare that all statements made herein of my own knowledge are true and that all statements made on information and belief are believed to be true, and further, that these statements were made with the knowledge that willful false statements and the like so made are punishable by fine or imprisonment, or both, under Section 1001 of Title 18 of the United States Code and that such willful false statements may jeopardize the validity of the application or any patent issuing thereon.

Date: June 23, 2005

Yasuhiro Yoshioka

Yasuhiro Yoshioka